UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,079	10/28/2003	Ho-Il Oh	5000-1-498	4155

33942   7590   02/25/2009

CHA & REITER, LLC
210 ROUTE 4 EAST STE 103
PARAMUS, NJ 07652

EXAMINER
LIN, WEN TAI

ART UNIT	PAPER NUMBER
2454	

MAIL DATE	DELIVERY MODE
02/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-16 and 18-20* is/are rejected.

7)☒ Claim(s) *8 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-20 are presented for examination.

2.   Claims 1-20 are objected to because the following terms lack antecedent basis:

(1) claims 1, 3-4, 13 and 20: "the transmission result";

(2) claim 3: "the common tokens ("a common token" is revealed in step (f))";

(3) claim 3: "the common token information";

(4) claims 11 and 20: "the individual token information";

(5) claim 17: "the common token information manager"; and

(6) claim 18: "the downstream data transmission".

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 1-7, 9-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Stiscia et al. (hereafter "Stiscia")[U.S. PGPub 20040141759] in view of Thomas et al.

(hereafter "Thomas")[U.S. Pat. No. 7031343].

5.   As to claim 1, Stiscia teaches the invention substantially as claimed including: a method

for controlling traffic of downstream data to be transmitted from an OLT (Optical Line

Termination) to ONUs (Optical Network Units using an APON (ATM PON) as example,

including an ODN (Optical Distribution Network) connected to the OLT and a plurality of the

ONUs connected to a plurality of subscribers [e.g., Figs. 1-3]. However, Stiscia teaches that an

ordinary skilled artisan can apply the same principles to EPON (Ethernet Passive Optical

Network) [e.g., paragraphs 128, 148 and 225], wherein said method comprising the steps of:

(a) generating individual tokens respectively for the ONUs based on individual transfer rates

allocated respectively to the ONUs [e.g., paragraphs 3 and 5; note that based on each

subscriber's SLA or QoS requirements, each subscriber device is guaranteed with certain transfer

rates such as those described in Tables 1 and 3];

(c) selecting one of the transmission buffers, and checking whether there is downstream data

awaiting transmission stored in the selected buffer [e.g., claim 9]; (d) determining whether the

downstream data can be transmitted based on individual token information, previously stored, for

an ONU corresponding to the downstream data; and (e) calculating a service rate of the

corresponding ONU according to the transmission result, and storing the calculated service rate

[e.g., claims 1 and 9-16].

Stiscia does not specifically teach classifying the downstream data based on the data's

destination ONU, and then storing the downstream data in transmission buffers which

correspond respectively to the ONUs.

However, in the same field of endeavor, Thomas teaches classifying the downstream data based on QoS policies associated with each subscriber, which can be identified by the data's destination ONU [e.g., Thomas: abstract].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to classify Stiscia's downstream data according to the service levels associated with each subscriber because it facilitates the volume control of downstream communications that are received by a subscriber of the optical network [Thomas: Abstract; Stiscia: paragraphs 138-139 and 188-189].

6.   As to claim 2, Stiscia discloses the method as set forth in claim 1, wherein step (a) further includes storing the individual tokens while classifying them according to the ONUs [it is inherent that the individual tokens must be stored for future reference while identifying the traffic classes associated with individual tokens].

7.   As to claim 3, Stiscia is silent about the steps of:

(f) generating a common token based on a total transfer rate of the EPON and then storing the common token; (g), if it is determined at the step (d) that the downstream data cannot be transmitted based on the individual token information, determining whether the downstream data can be transmitted based on information of the common tokens; and (h), if it is determined at the step (g) that the downstream data can be transmitted based on the common token information, transmitting the downstream data, and changing the common token information according to the transmission result.

However, Stiscia teaches that there are five transmission characteristic (see Table 3) as a guideline for adapting the size of downstream sub-buffers [e.g., claim 15], wherein types 1 and 2 corresponds the individual token and common token, respectively. Further it is rather popular to offer QoS service based on a "best effort" attempt wherein under stressful network conditions service level can be degraded, say, from type 1 performance to type 2 performance.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adaptively adjust Stiscia's data transfer rate (which is being translated to adjustment of buffer sizes) according to the aforementioned best effort scenario because it allows Stiscia's system to dynamically allocate bandwidth against network fluctuations such as those caused by burst traffic [e.g., Abstract].

8.   As to claim 4, following the same reasons presented in the rejection of claim 3, it is obvious to an ordinary skilled artisan that if it is determined at the step (d) that the downstream data can be transmitted based on the individual token information, transmitting the downstream data, and then calculating the service rate of the corresponding ONU after changing the individual token information of the corresponding ONU according to the transmission result because this is an essential step in dynamic bandwidth allocation, that is, by modifying a size of each of the sub-buffers of the downstream buffer based on one of the best transmission characteristic.

9.   As to claim 5, Stiscia does not specifically teach that all the transmission buffers corresponding respectively to the ONUs connected to the EPON are selected one by one in a round robin scheme.

However, using round-robin scheme to choose one out of many candidates is a well known approach. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same scheme in choosing different transmission buffers because it is easy to implement a fair scheme as such.

10.   As to claim 6, Stiscia further teaches that at the step (b), the common token is generated to have the same value as a sum of all the individual tokens generated at the step (a) [note according to Table 3: type-2 transmission characteristic is an average transfer rate of the individual transfer rates].

11.   As to claim 7, Stiscia further teaches that the step (e) includes the steps of:

    (e-1) comparing a volume of data stored in each of the transmission buffers with a volume of data transmittable by an individual token for a corresponding one of the ONUs; and (e-2) determining that said data stored in each of the transmission buffers can be transmitted, if the compared result of the step (e-1) is that said volume of data stored in each of the transmission buffers is smaller than or equal to said volume of data transmittable by the individual token [Note that it is inherent not to transmit data exceeding the allowable network bandwidth].

12.   As to claim 9, Stiscia further teaches that at the step (h), an average length of downstream data serviced to each of the ONUs for a predetermined period of time is calculated as a downstream data service rate of said each of the ONUs [note that since type-2 of Table 3 takes average values and the nature of network available bandwidth fluctuates, it is obvious to use an average value (over a predetermined period of time) as a reference for subsequent comparisons].

13.   As to claim 10, Stiscia further teaches that at the step (i), an average length of

downstream data serviced to each of the ONUs for a predetermined period of time is calculated

as a downstream data service rate of said each of the ONUs [note that since the nature of network

available bandwidth fluctuates, it is obvious to use an average value (over a predetermined

period of time) as a reference for subsequent comparisons].

14.   As to claims 11-16 and 18-20, since the features of these claims can also be found in

claims 1, 3-4, 6-7 and 9-10, they are rejected for the same reasons set forth in the rejection of

claims 1, 3-4, 6-7 and 9-10 above.

15.   Claims 8 and 17 are objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten in independent form including all of the limitations of the base claim

and any intervening claims.

16.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

Shi et al.   [U.S. PGPub 20030179769]
Iwasaki et al. [U.S. PGPub 20020027682]

17.   A shortened statutory period for response to this action is set to expire 3 (three) months

and 0 days from the mail date of this letter. Failure to respond within the period for response will

result in ABANDONMENT of the application (see 35 U.S.C. 133, M.P.E.P. 710.02, 710.02(b)).

Conclusion

Examiner note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the contest of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Tai Lin whose telephone number is (571)272-3969. The examiner can normally be reached on Monday-Friday (8:00-5:00) .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571)272-1915. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

> (571) 273-8300 for official communications; and

> (571) 273-3969 for status inquires draft communication.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Tai Lin

February 17, 2009

/Wen-Tai Lin/

Primary Examiner, Art Unit 2454